Patent claims 1 to 18 (Article 34 Chapter II PCT)

- 1. Nucleic acid molecule of SEQ ID NO 1 or the sequence complementary thereto.
- 2. Nucleic acid molecule having a shortened sequence compared with a nucleic acid molecule according to claim 1, namely the sequence of the region or in the region of the nucleotide positions 12 to 131.
- 3. Nucleic acid molecule having a shortened sequence compared with a nucleic acid molecule according to claim 1, namely
- (i) SEQ ID NO 3 or
- (ii) SEQ ID NO 4 or
- (iii) SEQ ID NO 5 or
- (iv) the sequence complementary to each of (i), (ii) and (iii).
- 4. Nucleic acid molecule of SEOLD NO 2 or the sequence complementary thereto.
- 5. Nucleic acid molecule *characterised* in that, in respect of its sequence in at least 10 successive nucleotides of its nucleotide chain,
- (i) it is identical to a nucleic acid molecule according to one of the preceding claims or
- (ii) it corresponds to a nucleic acid molecule according to one of the preceding claims in 9 out of 10 successive nucleotides or
- (iii) it corresponds to a nucleic acid molecule according to one of the preceding claims in 8 out of 10 successive nucleotides or

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- (iv) it is at least 90 % homologous to a nucleic acid molecule according to one of the preceding claims, the nucleic acid molecule allowing the detection of bacteria of the *Pseudomonas* genus.
- 6. Nucleic acid molecule according to claim 5, characterised in that it is from 10 to 250, and preferably from 15 to 30, nucleotides long.
- 7. Nucleic acid molecule according to one of the preceding claims, *characterised* in that it is single-stranded or double-stranded.
- 8. Nucleic acid molecule according to one of the preceding claims, characterised in that it is present
- (i) as DNA of
- (ii) as RNA corresponding to (i) or
- (iii) as PNA,

the nucleic acid molecule where appropriate having been modified in a manner known per se for analytical detection processes, especially those based on hybridisation and/or amplification.

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- 9. Nucleic acid molecule according to claim 8, characterised in that the nucleic acid molecule has been modified in such a manner that up to 20% of the nucleotides of at least 10 successive nucleotides of its nucleotide chain, especially 1 or 2 nucleotides, have been replaced by analogous building blocks known per se as probes and/or primers, especially by nucleotides that do not occur naturally in bacteria.
- 10. Nucleic acid molecule according to claim 8 or 9, characterised in that the nucleic acid molecule has been

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modified or labelled or additionally modified or labelled in such a manner that it comprises, in a manner known per se for analytical detection processes, one or more radioactive groups, coloured groups, fluorescent groups, groups for immobilisation on a solid phase and/or groups for an indirect or direct reaction, especially for an enzymatic reaction, preferably using antibodies, antigens, enzymes and/or substances having an affinity for enzymes or enzyme complexes, and/or otherwise modifying or modified groups of nucleic-acid-like structure.

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- 11. One or more nucleic acid molecules according to one of the preceding claims in the presence of optional auxiliary substances and in the form of a kit for analytical detection processes, especially for the detection of bacteria of the *Pseudomonas* genus.
- 12. Use of one or more nucleic acid molecules according to one of claims 1 to 10 or in the form of a kit according to claim 11 for detection of the presence or absence of bacteria belonging to a group of bacteria of the *Pseudomonas* genus.
- 13. Use according to claim 12, characterised in that the group of bacteria of the *Pseudomonas* genus includes various strains of *Pseudomonas aeruginosa* or is made up from those strains.
- 14. Use according to claim 13, characterised in that the group of bacteria of the *Pseudomonas* genus is composed exclusively of *Pseudomonas* aeruginosa strains.

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Sule C3 15. Use according to one of claims 12 to 14, characterised in that nucleic acid hybridisation and/or nucleic acid amplification is/are carried out.

- 16. Use according to claim 15, *characterised* in that, as nucleic acid amplification, a polymerase chain reaction is carried out.
- 17. Use according to one of claims 12 to 16, characterised in that the detection is carried out by distinguishing the to-be-detected bacteria from not-to-be-detected bacteria on the basis of differences in the genomic DNA and/or RNA at at least one nucleotide position in the region of a nucleic acid molecule according to one of claims 1 to 10.
- 18. Use according to claim 17 characterised in that distinguishing is carried out on the basis of differences in the region of a nucleic acid molecule according to claim 1.

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